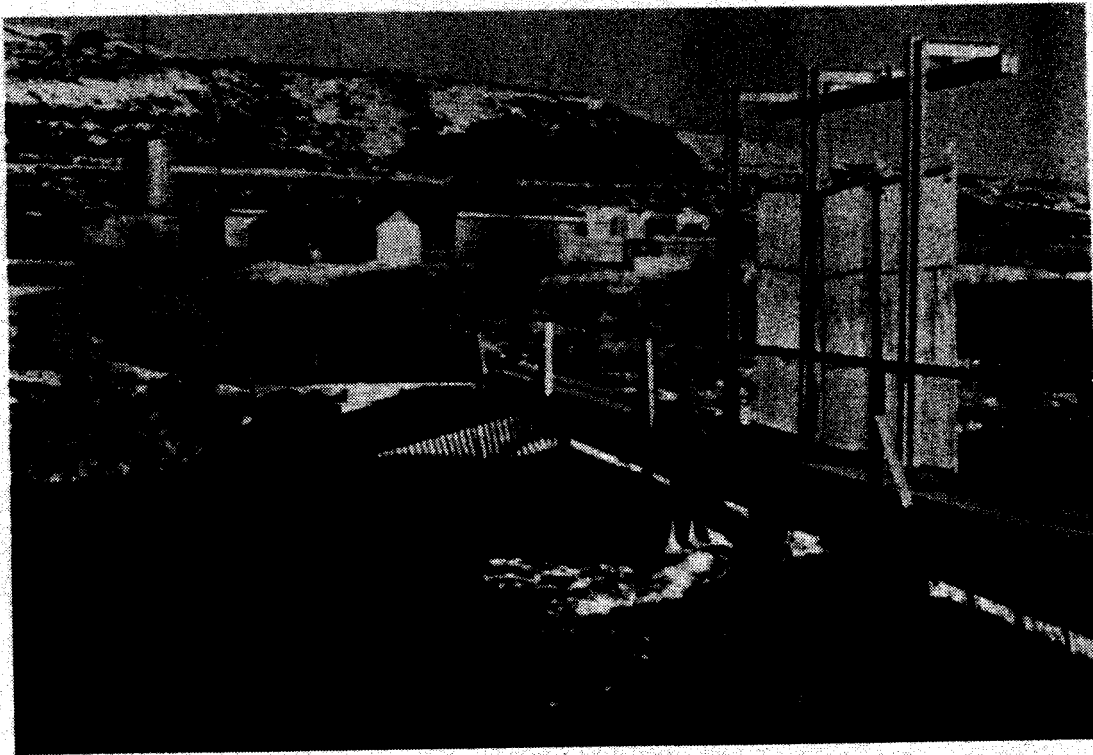




Idaho Power

PAHSIMEROI HATCHERY ANNUAL REPORT

1985 BROOD YEAR REPORT
SPRING AND SUMMER CHINOOK



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TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT	1
OBJECTIVES	2
INTRODUCTION	2
WATER SUPPLY	2
HATCHERY FACILITIES	2
SPRING CHINOOK TRAPPING	3
SALMON RELEASES FOR TRIBAL FISHERY	3
SPRING CHINOOK SPAWNING SUMMARY	3
SUMMER CHINOOK TRAPPING	3
SUMMER CHINOOK SPAWNING INFORMATION	7
SPAWNING TECHNIQUE	7
SOUTH FORK SUMMER CHINOOK EGGS	7
FISH PRODUCTION	7
FISH HEALTH	8
HATCHERY IMPROVEMENTS	8
STAFFING	8

LIST OF TABLES

Table 1. Return rates of spring and summer chinook at Pahsimeroi Hatchery	5
Table 2. Length frequency of adult spring and summer chinook, 1985	6

LIST OF FIGURES

Figure 1. Run Timing.	4
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ABSTRACT

A total of 2,048 spring chinook (730 males, 838 females and 480 jacks) were trapped during 1985. In addition, 110 summer chinook (53 males, 30 females and 27 jacks) were trapped. Six hundred and eighteen female spring chinook were spawned, yielding 2,602,404 eggs. Twenty-four female summer chinook were spawned and 127,332 eggs collected.

A temporary weir was installed on Yankee Fork, and 235 adult spring chinook salmon and 424 jacks were transported from the Pahsimeroi Hatchery and released for a Shoshone-Bannock tribal fishery.

The number of spring chinook produced was 768,305, of which 321,596 subsmolts were released into Yankee Fork and 2,009 were transferred to Hayden Creek Hatchery. The remaining 444,700 smolts were released in Hells Canyon in March of 1987. A total of 258,600 chinook smolts, weighing 16,163 pounds, were released at Pahsimeroi Hatchery on March 23, 1987.

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OBJECTIVES

The objectives of the Pahsimeroi Hatchery are:

1. To rear one million summer chinook smolts for release into the Pahsimeroi River.
2. To trap and spawn summer chinook adults returning to the Pahsimeroi River.

INTRODUCTION

Pahsimeroi Hatchery is owned and funded by Idaho Power Company (IPC) and is operated by the Idaho Department of Fish and Game. The salmon and steelhead programs are mitigation for the IPC dams constructed on the Snake River in Hells Canyon. The hatchery is located near Ellis, Idaho, one mile upstream on the Pahsimeroi River, with the final rearing ponds located at a separate facility seven miles upstream on the Pahsimeroi.

WATER SUPPLY

Water for the hatchery is supplied by the Pahsimeroi River and varies in temperature from 32 F during the winter to 64 F in summer. The river water has a high organic load during winter, but is quite clean during the summer months. In addition, the hatchery has spring water available for its egg incubation system. Its temperature varies from 52 F in the winter to 55 F in the summer, and it has a ph of 7.8.

HATCHERY FACILITIES

Located on the hatchery is a fish trap consisting of three concrete pens measuring 15 ft. x 75 ft. x 3.5 ft. deep. Adult fish are held in these pens until they are spawned. The trap has a series of ladders in the structure and a metal grate that keeps the fish from returning to the river. A weir 55 ft. long crosses the Pahsimeroi River to guide the arriving fish into the trap facility.

Near the trap facility are located a residence, two pumphouses, a 10,000 gallon water storage tank, a metal shop building, a cinderblock office building, public restrooms, an incubator room with capacity for 20 double-stacks of Heath incubators and a building with a two bedroom dormitory and workshop. Four concrete raceways (4 ft. x 100 ft.) are used for early rearing of salmon and steelhead fry.

Two dirt rearing ponds (40 ft. x 300 ft.) are located seven miles above the trap at a separate facility. These are used to rear summer

chinook smolts. Other facilities at the upper pond site include a residence, a small storage building, a feed bin for storing dry fish feed and a walk-in freezer for storing frozen salmon feed.

SPRING CHINOOK TRAPPING

Spring chinook trapping began on May 26 and concluded July 8. During this time, 1,568 adults (730 males, 838 females and 97 jacks) were trapped (Fig. 1). Return rates for brood year fish contributing to this run are reported in Table 1. As fish were trapped and sorted, they were injected with erythromycin phosphate to aid in controlling bacterial kidney disease. Prespawning mortality resulted in the loss of 60 males, 79 females and 9 jacks; 8.9% of the total number trapped. Kidney disease caused 70.3% of prespawning mortality.

SALMON RELEASES FOR TRIBAL FISHERY

A weir was installed on the Yankee Fork River above the town site of Custer. The weir was a metal structure placed across the stream to prevent salmon from moving downstream. A total of 108 adult males, 127 adult females and 424 jacks were transported during June 26 through July 8 to this area and released for an Indian fishery. Members of the Shoshone-Bannock Tribes utilized this fishery for their traditional-style salmon fishing.

SPRING CHINOOK SPAWNING SUMMARY

Spawning of spring chinook started on August 26 and ended on September 24. A total of 618 females were spawned, yielding 2,602,404 green eggs. An overall eye-up of 95.11 was attained.

The first six egg lots were placed in the Indian Creek hatching channel on the Selway River. A total of 1,478,439 eyed eggs were buried in the gravel for "natural" fish production.

The remaining 996,152 eyed eggs were retained for hatching at Pahsimeroi Hatchery, resulting in 891,665 buttoned fry being placed in raceways during February and March. A total of 500,000 fry were transported from the raceways to Rearing Pond #2 for final rearing, with the remaining 391,665 fingerlings being stocked in Yankee Fork.

SUMMER CHINOOK TRAPPING

Trapping for summer chinook commenced on July 9 and concluded on September 30 (Fig. 1). A total of 83 adults (53 males, 30 females and 27 jacks) were trapped during this period. Length frequencies were

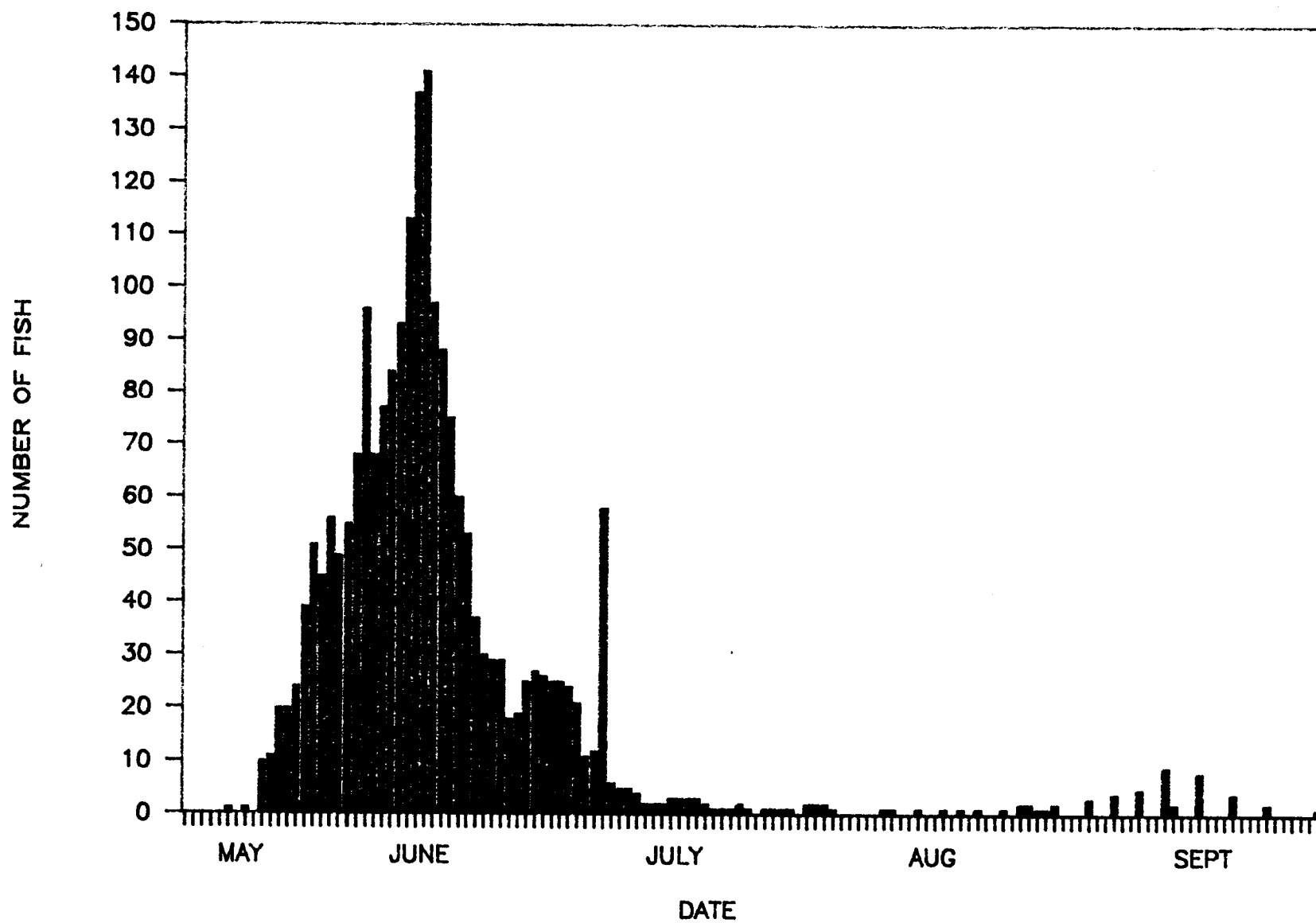


Figure 1. Timing of arrival of adult chinook to Pahsimeroi Hatchery, 1985.

Table 1. Return rates of spring and summer chinook at Pahsimeroi Hatchery.

Summer chinook							
Brood year	Release date	Smolts released	Returns			Total	% return
			1-ocean	2-ocean	3-ocean		
1968	1970	300,000	89	544	40	673	.22
1969	1971	250,000	40	486	9	535	.21
1970	1972	250,000	20	143	105	268	.11
1971	1973	347,000	3	17	32	52	.015
1972	1974	330,000	12	286	436	734	.22
1973	1975	114,000	53	115	*		
1974	1976	121,000	7	*	54		
1975	1977	235,000	*	10	4		
1976	1978	218,000	2	29	9	40	.018
1981	1983	13,700	13	72	30	115	.84
1982	1984	55,800	27	278	52	357	.64
1983	1985	209,150	37	409			
1984	1986	12,100	12				
1985	1987	258,600					
Spring Chinook							
1981	1983	437,300	97	1,568	398	2,063	.47
1982	1984	1,143,000	480	6,019	1,463	7,962	.70
1983	1985	178,800	101	677			
1984	1986	81,000	35				

* Trap not in operation during 1978.

Table 2. Length frequency of adult spring and summer chinook, 1985.

Fork length (cm)	Springs		Summers	
	males	females	males	females
56	0	0	3	0
57	3	0	1	0
58	1	2	1	0
59	3	0	1	0
60	0	0	5	0
61	0	0	1	0
62	3	0	0	0
63	4	0	2	0
64	3	2	3	0
65	4	7	0	1
66	5	18	1	0
67	9	20	0	0
68	20	51	0	0
69	29	16	3	0
70	48	116	0	3
71	49	85	2	0
72	63	91	0	6
73	78	114	1	4
74	59	83	5	1
75	60	75	1	0
76	54	64	3	1
77	55	33	3	3
78	58	31	4	2
79	29	20	2	1
80	49	4	0	2
81	16	4	3	0
82	19	0	1	2
83	7	2	0	0
84	3	0	1	0
85	1	0	3	1
86	1	0	1	0
87	0	0	0	1
88	1	0	1	0
89	0	0	0	0
90	0	0	0	0
91	0	0	1	0
92	0	0	0	0
93	0	0	0	0
94	0	0	0	0
95	0	0	0	1
96	0	0	0	1
Totals	734	838	53	30

taken on all adults and are reported in Table 2. Age distribution of fish collected was: 27 three-year-olds, 72 four-year-olds and 11 five-year-olds.

Six males and six females (14.4%) died prior to spawning from unknown causes.

SUMMER CHINOOK SPAWNING INFORMATION

Spawning of summer chinook started on September 9 and lasted through October 5. A total of 24 females were spawned for 127,332 green eggs, and fecundity was 5,305 eggs per female. The average eye-up percentage was 92.9.

SPAWNING TECHNIQUE

Females were sorted twice a week for ripeness. Ripe fish were killed by a blow to the head and bled by severing the caudal artery. Eggs from four females were pooled in a bucket containing sperm pooled from four males. The eggs were hand-stirred and allowed to sit for five minutes. A 75 ppm iodine solution (Argentyne) was added to the eggs and drained off to remove the sperm. This step was repeated. The solution was again added to the eggs and allowed to sit for 30 minutes. This solution was then rinsed off, and the eggs were placed in water for 30 minutes. Eggs were then measured into incubator trays at 100 ounces per tray.

Eggs were treated three times a week with a 1,667 ppm formalin solution to control fungal growth. After 21 days, the eggs eyed-up and were shocked and floated in salt brine solution to remove blank or dead eggs. Eyed eggs were measured using the displacement method and placed back into the incubators.

After the eggs were eyed-up and picked, the incubator water system was switched from spring water to cooler river water. This was done to retard fry development and to attain programmed growth rates.

SOUTH FORK SUMMER CHINOOK EGGS

Three eyed-egg lots totaling 200,448 were received from McCall Hatchery during early October. They were from the South Fork of the Salmon River summer chinook stock and are to be used to help re-build the Pahsimeroi summer chinook run.

FISH PRODUCTION

Initial transfer of salmon fry into the raceways began during mid-December, while the bulk of the fry were moved during February and March. Initially, these fish were hand fed at the rate of 3% body weight, but were reduced to 1.251 by November 1 with a hatchery constant of 6.5.

Both spring and summer chinook were transported to the upper rearing ponds during April. On April 4, 288,900 summer chinook fingerlings, averaging 557 per pound, were transferred to Pond #1. About 500,000 spring chinook fingerlings, averaging 326 per pound, were transferred to Pond 12 on April 24, while 321,596 smolts (18,300 pounds) were stocked in Yankee Fork and the remaining 2,009 sub-smolts (72 pounds) were transferred to the Hayden Creek Hatchery.

Both spring and summer chinook smolts were released during March 1987. Hells Canyon received 444,700 (18,300 pounds) spring chinook, while 258,600 (16,150 pounds) summer chinook were released from Pond #1 into the Pahsimeroi River.

All chinook were fed diets of Oregon moist pellets. The spring chinook had a conversion rate of 1.94, while the summer chinook achieved a conversion of 1.4 pounds of feed fed per pound of fish produced.

FISH HEALTH

No major fish health problems were encountered this year. However, the summer chinook fry were treated several times throughout the year with benzylkonium chloride at 4 ppm to control bacterial gill disease and were treated with TM-50 for 14 days to control a systemic bacterial infection. Both treatments were effective, and no abnormally high mortalities were experienced.

HATCHERY IMPROVEMENTS

Several hatchery improvements were made during the year: a new building was built by Shafer Construction of Salmon, Idaho, containing a garage, shop and two-bedroom dormitory; a chemical storage cabinet was constructed and placed in one pumphouse; the new shop and garage were varnished, as well as the residence garage; the incubator building and pumphouse 11 was painted to match the new shop building; the office interior was painted; a new energy-efficient water heater was installed in the incubator room; a larger by-pass pipe was placed in the canal bank to carry excess water during the time the trap is shut down when sorting fish; the new lawn area was graded, leveled and readied for seeding; a double sink and wooden cabinet with storage space was

installed in the shop and will primarily be used as a lab; a grey metal roof was installed on the residence located at the rearing ponds; and the temporary employee quarters had wooden window sills installed to protect the sheet rock walls from moisture from the metal windows.

STAFFING

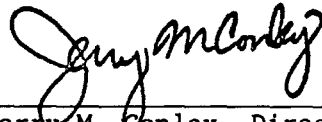
The hatchery is staffed with two permanent employees: a hatchery superintendent II and a hatchery superintendent I. Several temporaries are employed at various times of the year to help with trapping and spawning steelhead and salmon.

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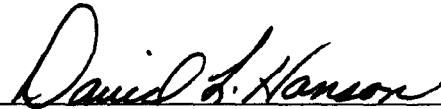
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